

A SUMMARY OF HIGH CONSERVATION VALUE (HCV) IN TANGKULAP-SG. PINANGAH FOREST RESERVES (FMU 17A) – THEIR MANAGEMENT PRESCRIPTIONS & LOCATION

HCV	Element	Definition	Location / Remarks <i>(refer map attached)</i>	Management and Measures to Maintain HCVs.
Biodiversity (HCV 1)	Protected Areas	a) Protection Forest Reserve.	NIL in FMU17A.	NIL
		b) Virgin Jungle Reserve.	VJR Timbah (292ha).	Forest Protection (boundary patrol, etc.).
		c) Sensitive areas identified for conservation and based on minimizing impacts from forestry operations such as protection of steep slopes (>25°) and 30 m buffer zones for streams (50m in compartments under the mosaic system).	7,960ha at the north-western part of Sg. Pinangah FR, between Sg. Karamuak and Sg. Tangkulap Besar.	Prohibition of all or majority of harvesting activities will be enforced within conservation areas.
		d) Land within 30 m of both sides of all permanent rivers and streams as required in RIL.	2 major rivers, Sg Karamuak and Sg Tangkulap Besar and their major tributaries.	No logging activities within the 30 m zone.
		e) Land classified under Stratum 1 and 2.	Stratum 1 (234 ha) and Stratum 2 (3,510 ha).	No logging at all in Stratum 1 (future seed source), but for Stratum 2, forest harvesting should strictly follow RIL Techniques. Forest rehabilitation and silviculture are necessary.
	Threatened & endangered species (large mammals)	a) Orang-utan.	Area below 200m a.s.l.	Timber production with RIL methods, and/or rehabilitation where appropriate.
		b) Pygmy Elephant.		None, as elephants can utilise open forest conditions.
		c) Tembadau (wild cattle).		None, as tembadaus can utilise open forest conditions.

		d) Natural mineral sources (salt licks, kaolin clay).		No logging activities within the 5 ha area. Mark a zone of about 5 hectares around or preserved with 100 m radius buffer zones all known locations (with GPS readings).
Large landscape forests (HCV 2)	Threatened & endangered species (plants)	The entire FMU 17A area, which consists mainly of lowland mixed-dipterocarp forest.	Not significant.	Timber production with RIL methods, and/or rehabilitation/silviculture where appropriate.
	Endemic species	Species confined to FMU 17A.	None known in FMU 17A, but future study may reveal such species.	Case-by-case.
	Critical temporal concentrations	Assumed not applicable in FMU 17A.	None known in FMU 17A.	Case-by-case.
	Extensive undisturbed forests	Any contiguous area of forest more than 20,000 ha in extent which is either known to have never been logged and/or is predominantly Stratum I.	There is no large landscape level in FMU 17A that can be categorized into this HCV.	NIL
Rare, threatened & endangered ecosystems (HCV 3)	Previously widespread forest type which has been significantly depleted by conversion and unsustainable harvesting.	Forests below 200 m a.s.l.	All forest area below 200m a.s.l in this FMU fit to be classified into this HCV.	All forest harvesting must comply with RIL Procedures. Forest Rehabilitation needs to be carried out where appropriate using native species mixed with 15% of tree species identified as habitat /fruiting trees. Silvicultural tending throughout the FMU is very necessary to enable regeneration and/or growth of Potential Crop Trees. Silvicultural climber cutting is done by cutting of larger woody vines & climbing bamboo (>0.25 cm diameter) to limit competition with potential crop trees and enhance light penetration through the canopy should increase growth of young shoots. Small vines remain as food for elephants and other animals.

			Severely degraded forests below 200m a.s.l.	Intensive Reforestation – small areas (<30 ha) that are severely degraded (<35 PCTs/ha) are clear-cut while residual better quality forest areas are retained for habitat. Clear-cut areas are planted with fast growing species (preference for native). 15% of clear-cut area is to be planted with habitat & high value dipterocarp species along the edges bordering the residual forest areas. Maximum of 60% of the area within an individual compartment may be clear-cut. Total area to be clear-cut must be less than 30% of the net production area. Compartment level management plan shall be prepared based on procedure 015.
	Localised forest types	Heath forest, forest on ultramafic soils, forest on freshwater swamps, etc.	<ul style="list-style-type: none"> ▪ Kerapah Forest (1,128 ha). ▪ Lowland Ultramafic Forest (5,896 ha). ▪ Lowland Ultramafic Forest-Alluvial (819 ha). ▪ Upland Ultramafic Forest (6,574 ha). ▪ Lower Montane Ultramafic Forest (114 ha). ▪ Lowland Seasonal Freshwater Swamp Forest (149 ha). 	Case-by-case.
Environmental services (HCV 4)	Water catchments	Areas identified as “important water catchments”, plus all land above 25° slope.	Tangkalap FR - Cpts 22 and 23 near Kg Tamoi/Kenang- Kenangan.	No logging and no roads except existing roads where no reasonable alternative route is possible.
	Soil erosion control	Areas identified with high erosion risk, plus all land above 25° slope, plus other specific areas where strict control of land use is necessary to minimise soil erosion.	Conservation areas and areas >25° slopes.	No logging or low intensity of harvesting following RIL methods.

	Fire barriers	Areas where there is believed to be a high risk of fire spreading during dry periods.	All compartments bordering with villages and plantation estates. Forests along roads such as, Maxland Road, Tangkulap-Deramakot Road, Waja Kaya Road, Bountiful Return Road, Borneo Glow Road may function as natural fire barrier.	Case-by-case.
Local people needs (HCV 5)	Forest areas used by local people	Forest areas used by natives for legally sanctioned purposes.	<ul style="list-style-type: none"> ▪ Cpt 91 adjacent to Kg Entilibon Asal and ▪ Cpt 22 near Kg Tamoi/Kenang-Kenangan. 	No logging, but enrichment planting and silviculture tending are encouraged, together with the local communities.
Cultural identity (HCV 6)	Sites “critical” to cultural identity	A site is critical when change to a forest can potentially cause an irreversible impact to local culture.	As so far, no important cultural sites were identified within FMU 17A.	Case-by-case



HCVF MAP OF FMU 17 A Area: 50,070 Ha.

LEGEND:

- Main Road (Gravel)
- Secondary Road
- River
- Forest Reserve Boundary
- Compartment Boundary

HCV 1

- Timbah VJR.
- Stratum 1
- Stratum 2
- Slope Above 25°
- River Buffer 30 m
- Area Below 200 m

HCV 3

- Lowland Seasonal Freshwater Swamp Forest
- Upland Kerapah Forest
- Lowland Ultramafic Forest
- Lowland Ultramafic Forest (Alluvial)
- Upland Ultramafic Forest
- Lower Montane Ultramafic Forest
- Area Below 200 m

HCV 4

- Fire buffer 100 m
- Water Catchment Cpt. 91 & 22
- Slope Above 25°
- Lowland Seasonal Freshwater Swamp Forest
- Upland Kerapah Forest
- Lowland Ultramafic Forest
- Lowland Ultramafic Forest (Alluvial)
- Upland Ultramafic Forest
- Lower Montane Ultramafic Forest

HCV 5 & 6

- Village
- Water Catchment Cpt. 91 & 22

